

were published in the *Journal* of the Asiatic Society of Bengal and in the *Proceedings* of the Zoological Society of London, Dr. Anderson wrote two catalogues on very different subjects for the museum under his charge in Calcutta. Of these, one was the first part of the "Catalogue of Mammals," published in 1881, the other the "Catalogue and Handbook of the Archæological Collection" which appeared in 1883.

Dr. Anderson was elected a Fellow of the Royal Society in 1879, and retired from the Indian Service in 1886. He had married a few years previously, and after retiring he travelled with his wife to Japan. Finally he settled in London, but for the remainder of his life his health was somewhat precarious, and he passed several winters in Egypt. Here he took up the study of the mammals and reptiles, which had received but scant attention since the early part of the century, when the great and superbly illustrated French work on Egypt appeared—a work which, brilliantly begun by Savigny and others, was never adequately completed.

To the work of collecting, examining, figuring and describing the Mammalia, Reptilia and Batrachia of Egypt, the later part of Dr. Anderson's life, when he was well enough for work, was mainly devoted. He also paid some attention to the fauna of the neighbouring countries, and in 1898 published "A Contribution to the Herpetology of Arabia," founded on the collections of the late Mr. J. T. Bent and others. The first part of the important work he had intended to produce on the zoology of Egypt, containing an account of the physical features of the country and descriptions of the Reptilia and Batrachia, appeared in 1898. It is a fine quarto volume with excellent figures, many of them coloured. He had made large collections and notes for the volume on Mammalia, and these it is hoped will be published in due course.

One of the last undertakings in which Dr. Anderson engaged, as soon as the Upper Nile valley was once thrown open to civilisation, was the systematic collection and description of the fish inhabiting the river and its tributaries. That this important work (of which a notice appeared in *NATURE* of February 23, 1899) is now being carried out with warm interest and assistance from the Egyptian Government, must be attributed to Dr. Anderson's foresight, zeal and skilful advocacy. Both in our Indian Empire and in North-eastern Africa, Dr. Anderson contributed much to the solution of one of the chief biological questions of the present day, an accurate knowledge of the distribution of animal life.

W. T. B.

#### NOTES.

A NEW instance of the want of encouragement, and often opposition, which scientific work receives in this country is given by Major Ronald Ross in a letter in Monday's *Times*. It appears from a correspondence just published, that in 1898 the Secretary of State for India refused to permit officers and soldiers to undergo voluntary inoculation against typhoid. It is known to our readers that Dr. Wright, professor of pathology at Netley, elaborated the system of inoculation against typhoid so long ago as 1896. The treatment is based on the soundest scientific principles, and substantial evidence of its value as a preventive measure had been obtained by laboratory experiments. It is entirely free from danger, and there would have been no difficulty in obtaining numerous soldiers to undergo inoculation with Dr. Wright's typhoid vaccine. From the results of the inoculations which might thus have been made three years ago, results would have been obtained which could have been utilised in the recent war in South Africa, and might have been the means of saving hundreds of lives. But unfortunately for the army as well as for science, officers and soldiers appear to have been forbidden

to submit themselves for inoculation. In other words, a real success against disease might have been scored, and in any case the information gained would have been of value in making further efforts to diminish mortality from typhoid, but the officials who should have done everything in their power to assist the work, deliberately stopped it by hampering the freedom of the persons who would most benefit by the treatment. It is difficult to understand this singular action, and Major Ross has done a public service by directing attention to it.

IT was announced in *NATURE* several months ago (p. 230) that Dr. L. Sambon and Dr. G. C. Low, of the London School of Tropical Medicine, had arranged to live from May to the end of October—that is, during the malarial season—in a part of the Roman Campagna, near Ostia, where scarcely a person spends a night without contracting malarial fever of a virulent type. No quinine or other drug was to be taken as a precautionary measure, but the investigators were to live in a mosquito-proof hut from an hour before sunset to an hour after sunrise, so as to avoid being bitten by mosquitoes, which only feed during the night. The experiment was planned to test the reality of the connection between malaria and mosquitoes, and we learn from the *British Medical Journal* that it has been most successful. On September 13, Prof. Grassi visited the residence of the investigators with several other men of science, and gave his testimony as to the value of the experiment in the following telegram to Dr. Manson: "Assembled in British mosquito-proof hut, having verified perfect health experimenters amongst malarial stricken inhabitants, I salute Manson who first formulated mosquito malarial theory.—Grassi." So far as the experiment has gone, therefore, the result is entirely satisfactory, and affords the strongest support to the mosquito theory of malaria. Additional evidence is given by Dr. Elliott, a member of the Liverpool expedition sent to Nigeria some time ago to investigate the subject of malarial fever, who has recently returned to this country. He reports that the members of the expedition have been perfectly well, although they have spent four months in some of the most malarious spots. They lived practically amongst marshes and other places hitherto supposed to be the most deadly, and they attribute their immunity to the careful use of mosquito nets at night.

ANOTHER experiment arranged in connection with their malarial investigation in the Campagna is described in the *British Medical Journal*. Drs. Sambon and Low have shown that by avoiding mosquitoes they avoid malaria; but this is, after all, only negative evidence, and its full value can only be appreciated in connection with the actual production of malaria in a healthy person in this country by the bites of mosquitoes containing the germ of the disease. This evidence is now forthcoming. We learn from our contemporary that a consignment of mosquitoes which had been fed on the blood of a sufferer from malaria in Rome, under the direction of Prof. Bastianelli, was received in London early in July. A son of Dr. Manson, who offered himself as a subject for experiment, allowed himself to be bitten by these insects, and, though he has never been in a malarious country since he was a child, he is now suffering from well-marked malarial infection of double tertian type, and microscopical examination shows the presence of numerous parasites in his blood. Full details of the experiments will be published in due course; meanwhile, they must be regarded as affording the most striking confirmation of the transmission of malaria by mosquito bites that has yet been obtained.

DR. L. A. BAUER, in charge of magnetic work of the U.S. Coast and Geodetic Survey, has gone to Alaska and to the Hawaiian Islands, in order to select the sites for the magnetic observatories in those regions. The principal or standard

magnetic observatory is now being erected sixteen miles to the south-east of Washington City, and a fourth observatory is, temporarily, in operation at Baldwin, Kansas. The last named observatory is central to the area being surveyed by four magnetic parties, and it will be shifted about in the western States according to the requirements of the magnetic survey. It is the intention to have the four observatories ready in time to co-operate with the Antarctic expeditions.

IN connection with the usurpation of swallows' nests by house sparrows, Mr. J. H. Allchin sends a description of a swallow-cum-sparrow's nest seen by him at Dymchurch, in the Romney Marsh. The original nest was built on a beam immediately under the corrugated iron roof of a shed, but the usurpers had so completely covered it with straw, grass, feathers, fibres and other materials, that it was almost impossible to see any portion of it. Mr. Allchin remarks: "I have seen other nests of swallows which had been taken possession of by sparrows, but in those instances the only evidences of occupation were bits of straw or grass sticking out of the entrance; this is the first one I have seen covered over so thoroughly as to completely hide the work of the original builders.

ANOTHER successful experiment with electric traction on railways is reported from Germany, the line being from Berlin to Zehlendorf on the new Wannsee railway. The train in question (says *Feilden's Magazine* for September) was equipped as if actually running to scheduled time. It was furnished with a motor car at each end, the work of propulsion being divided equally between them, the advantage claimed for this being that the reversing of the train becomes unnecessary at the end of each journey. Eight ordinary cars were employed in addition, seating in all 400 passengers. These experiments are to be continued over a period of one year, at the termination of which it is expected that the question will be decided whether or not electric propulsion is to be wholly substituted for steam power, while at the same time much useful data will be gathered. An advantage already claimed is that electric motive power is about 15 per cent. cheaper than steam, and also at higher velocities the chance of accidents is supposed to be less. A train of this description is at present on trial in this country, and it will be useful to compare notes from each when the material is available.

FROM all quarters we learn that the present season has been remarkable for the appearance of numerous specimens of the clouded yellow butterflies (*Colias edusa* and *C. hyale*), as well as the holly-blue (*Lycæna argiolus*). During one country walk of three miles in Cambridgeshire, on August 13, the present writer saw three *hyale* and one *edusa*; in a garden near Brighton a holly-blue was seen on September 4, and many collectors report having obtained fair series of one or both of the two yellows in a day's hunting. From *Science Gossip* we learn that the variety *helice* of *C. edusa* has occurred in some numbers in clover fields in east Essex. The year 1892 will be remembered as the last occasion on which *C. edusa* occurred in abundance, but the present season is characterised by the comparative frequency of the pale species *hyale*, which was far less plentiful in 1892. The humming-bird moth (*Macroglossa stellatarum*) appears to have been gaining rather more than the usual notoriety in the daily papers which it has received ever since, some thirty years ago, the late Rev. J. G. Wood, in his "Common British Moths," wrote: "This moth, which is tolerably common, has been very familiar to the public of late years on account of the many letters which have appeared in the daily journals, much to the amusement of practical entomologists, who have been too familiar with the insect in question to think it worth a special notice."

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DR. ANTONIO PORTA communicates to the *Rendiconti del R. Istituto Lombardo* certain studies on the anatomy of the common frog-hopper (*Aphrophora spumaria*, L.) having especial reference to the secretion of froth, so well known to all gardeners. The author finds that the apparatus which secretes the frothy liquid in *A. spumaria*, and possibly in other species, consists of hypodermal glands scattered over the back and especially near the stigma, that the *corpus ovalis* is perhaps in relation with the secretion of froth, that the mass of cells found in the latero-ventral position collect and perhaps produce material of which the animal makes use in the elaboration of the secretions, and that the glandular epithelium of the seventh and eighth segments serve as supports for minute appendages of a branchial character, which have disappeared in *Cicada* and *Nepa*, thus confirming the hypothesis of Wheeler.

IN view of our knowledge of the influence of radiant energy on electrically charged bodies, much interest attaches to the question whether a solar eclipse has any marked effect on atmospheric electricity. Dr. Julius Elster made observations during the last total eclipse at Algiers, and remarked an important fall of the potential of atmospheric electricity at and slightly after the totality. The observations are given in the last number of the *Memoirs* of the Societa degli Spettroscopisti Italiani. On the other hand, Dr. Emilio Oddone describes, in the *Rendiconti del R. Istituto Lombardo*, observations made with an electrometer at Pavia, where during the last eclipse eight-tenths of the solar diameter were obscured. The results were of a negative character. Before the eclipse, high negative potentials were observed, which were attributable to clouds accompanying a distant thunderstorm; but during the eclipse the variations in the electrostatic potential seem to have been similar to the ordinary diurnal variations. It thus appears that the eclipse exercised no very marked influence on the electric state of the air; but whether any portion of the observed variations was attributable to this cause is a question which it would be difficult to answer.

MR. DAVID ROBERTSON has communicated to the *Proceedings* of the Philosophical Society of Glasgow a short note on the equilibrium of a column of air and the atmospheric temperature gradient, in which the adiabatic formula for the maximum gradient consistent with stability is established in a simple manner.

PARTS 10 to 12 of the *Meddelanden från Lunds Astronomiska Observatorium* contain several papers on mathematical astronomy. One, by T. Brodén, deals with some probability considerations relating to the convergence of certain continued fractions, a problem treated by Gyldén in 1898. Certain librations in the planetary system are the subject of a paper by C. V. L. Charlier, while G. Norén and J. A. Wallberg contribute lengthy formulæ for the development of the disturbing function in its canonical elements.

NO. 110 of Ostwald's "Klassiker der exacten Wissenschaften" (Leipzig, Wilhelm Engelmann, 1900) is a reprint of J. H. van 't Hoff's papers on the laws of chemical equilibrium. The three papers in question are those communicated in French to the Swedish Academy of Sciences about the year 1885, and deal with the laws of chemical equilibrium in attenuated systems, a general property of attenuated media, and the electric conditions of chemical equilibrium. The present book is a translation of these papers by Georg Bredig, and an appendix of twenty pages contains a brief biographical notice of van 't Hoff and numerous notes, both historic and explanatory.

IN the course of a paper on the various forms of phosphorescence, in the *Revue Scientifique* for September 8, M. Gustave Le Bon describes a dark lamp ("lampe noire") for the produc-



tion of invisible radiations of great wave-length in connection with the study of phosphorescence. Among other experiments performed with this lamp, the following is very striking:—In an absolutely dark room, a dark lamp is placed on a table, this lamp not transmitting any trace of visible light. In front of it, M. Le Bon places a statuette covered with sulphide of lime that has been left in darkness for several days, and consequently retains no trace of phosphorescence. After about a couple of minutes the statuette becomes luminous, and appears to emerge from the darkness.

THE director of the Meteorological Observatory at Ponta Delgada, St. Michael, has published an interesting report on the proposed establishment of an international meteorological service at the Azores, including a history of the observations in those islands, and a chart showing the tracks of a number of storms which have visited that part of the North Atlantic during the last five years. The first regular observations were made at Angra (Terceira) in 1864, at Ponta Delgada in 1865, and at Santa Cruz (Flores) in 1897. The observations at Ponta Delgada are now regularly published in the Daily Weather Report issued by the Meteorological Council. Since the year 1893 six of the islands have been in telegraphic communication with Lisbon, and eventually cables will be laid to England, Germany, and the United States, and Flores will be connected with the other islands. The direct communication of observations between America, the Azores and this country cannot fail to be most useful both to science and to shipping; and, although the chart above referred to shows that most of the depressions passing the archipelago strike the coasts of Europe considerably south of the British Islands, a knowledge of the positions and movements of the larger areas of high and low barometric pressures in the North Atlantic must be of prime importance for the purpose of storm prediction.

IT is well known that while country-folk adhere to the old idea that adders when frightened are in the habit of protecting their young by swallowing them, a large number of naturalists regard the feat as an impossibility. In the September number of *The Zoologist* Mr. G. Leighton, a well qualified anatomist, has set himself the task of ascertaining whether there is any foundation for the objection. And he arrives at the conclusion that there is no anatomical reason why the oft-repeated statement of country observers should not be founded on fact. The author concludes by stating that the objection raised on the ground that the swallowing is unnecessary is a mere matter of opinion, adding that all that is now necessary is for a competent authority to dissect an adder which has been observed to swallow its young. "Until this is done scientific naturalists will continue to regard the question as one capable of proof, if true, but hitherto unproved."

THE eminent physiologist Dr. Gustave Loisel has communicated to the *Revue générale des Sciences* of September 15 a long and able letter urging the importance of establishing a course of instruction in practical embryology in the new French Universities. For a considerable time it appears that this subject has been taught to a certain extent in some of these institutions; but, for various reasons, it has not hitherto been made a part of the regular curriculum in all. After pointing out its extreme importance to students of medicine, anatomy, and gynaecology, Dr. Loisel formulates his appeal as follows: (1) That a single course of elementary embryology, embracing both that of man and of other vertebrates, should be established in each University, and that the necessary apparatus should be provided; (2) that this course should be instituted in a manner which would serve the needs of all students to whom a knowledge of this subject is of importance in their future career. These resolutions, we are glad to see, have been unanimously adopted by

the Section of Medicine at the recent Congress, and we may therefore hope that this important addition to the teaching of the Universities may shortly be in working order.

WE have received vol. vii. pt. I of the *Transactions* of the Norfolk and Norwich Naturalists' Society, which contains a number of papers on local topics.

IN the *Victorian Naturalist* for August, Mr. A. J. North describes a new genus and species of Australian Passerine bird as *Eremiornis carteri*, while Mr. R. Hall continues his valuable notes on the distribution of the birds of Australia.

WE have received the autumn number of *Bibby's Quarterly*, a journal issued at Liverpool ostensibly for the advertisement of certain agricultural and other commodities, but which contains a number of very interesting and well illustrated articles dealing with stock-raising and kindred subjects. Among these, one treating of ostrich-farming should attract general attention.

THE September issue of the *Annals* of the South African Museum is devoted to the commencement of a synopsis of the moths of South Africa, by Sir G. F. Hampson. South Africa is the oldest British possession of any considerable size which has hitherto never had a catalogue of its indigenous moths, and as there are now many collectors in the country, Sir George Hampson has been well advised in endeavouring to supply an acknowledged want.

THE "British Anti-Dubbing Association" has forwarded to us an influentially signed letter respecting the cruel practice of cutting the combs and wattles of game-fowls. In spite of the fact that the practice is already illegal, and that birds which have been "dubbed" are ineligible for prizes at the British Dairy Farmers' Association show, it is still largely prevalent. It is now hoped that by bringing the matter into prominent notice, the pressure of public opinion may be brought to bear upon the promoters of poultry-shows, so as to disqualify all mutilated birds from being classed.

THE present boundaries in North-west Bohemia between the districts in which pure German, pure Tschech (Chekh), and the various mixtures of these languages are spoken, are clearly indicated by Dr. J. Zemmrich on a map in *Globus* (Bd. lxxviii. p. 101) which illustrates his paper on that subject.

THE disposal of the dead is an important subject of ethnographical inquiry; therefore thanks from students are due to Mr. W. Crooke for his paper on "Primitive rites of disposal of the dead, with special reference to India," in the *Journal* of the Anthropological Institute (vol. xxix. p. 271). Nearly every form of burial is practised in India, and Mr. Crooke has given full references for every statement he has made.

FROM Dr. Thurston's report on the administration of the Madras Museum for the year 1899-1900, we learn that the general progress of that institution is satisfactory. Anthropologists will be pleased to hear that the superintendent has found time to continue his valuable investigations concerning the various races met with in the Presidency, those which have recently engaged his attention being the Pathan, Sheik and Saiyad Muhamadans of Madras city.

IN the *Abhandlungen der Naturwiss. Gesellsch., Isis*, 1900, Prof. J. Deichmüller describes a find of three broken urns and a stone axe of Neolithic age from near Dresden; these urns and two others described in the paper are decorated with incised lines. The same author also describes a late Slavic cemetery at Niedersiedlitz of a date about 1100 of our era. The single measurable skull was meso-orthocephalic, with a cephalic index of about 78.7.

A RECENT number of the *Abhandlungen* of the Vienna Geographical Society consists of an important paper, by Prof. Dr. J. Cvijik, of Belgrade, forming the first part of a study of the glaciation and morphology of parts of Bosnia, Herzegovina and Montenegro. The memoir, which it is impossible to summarise in a note, is illustrated by nine maps.

CHIEF CONSTRUCTOR KRETSCHMER publishes in the *Marine-Rundschau* a paper on the German Antarctic Expedition. The paper deals first with the chief difficulties of Antarctic exploration, the achievements of former expeditions, and the general scheme of work to be undertaken by the expeditions now being fitted out. The second part is of special interest from the minute details and numerous drawings given of the design and construction of the vessel now being built for the German Expedition. We have also received a reprint of Mr. W. S. Bruce's paper in the June number of the *Scottish Geographical Magazine*, giving an account of the proposed Scottish National Antarctic Expedition.

A DESCRIPTIVE catalogue of a collection of the economic minerals of Canada, exhibited at the Paris Exhibition, has been prepared under the direction of Dr. G. M. Dawson. This will be a useful work of reference. It is interesting to note that the collection includes samples of lithographic stone.

THE *Proceedings* of the Geologists' Association for August 1900 contains some highly interesting notes on the geology of the English Lake District, by Mr. J. E. Marr. The notes, which were prepared for the summer excursion of the Association, embody the results of work carried out for many years by Mr. Marr, partly in conjunction with Mr. A. Harker. While supporting the generally accepted views of the succession of the older Palæozoic rocks, the facts now brought forward indicate that the disturbances to which these rocks have been subjected are due to the pushing forward of the strata in a northerly direction at unequal rates. Under these conditions the Skiddaw Slates moved furthest forward, causing the Green Slates and Porphyries to "lag behind," and the Upper Slates (Silurian, with Coniston Limestone at base) to lag behind the Green Slates and Porphyries. The peculiar faulting attending these disturbances is specially described. The intrusive igneous rocks and their metamorphic effects and other subjects are also dealt with.

IN the same number of the *Proceedings* there is a paper, by Mr. G. E. Dibley, on zonal features of the chalk pits in the Rochester, Gravesend and Croydon areas. The author has laboured long and enthusiastically in collecting from the various zones, and the results which he now publishes in notes, and in a carefully arranged list of fossils, form an important addition to our knowledge of the life-history of the chalk. An interesting bone, which he obtained from the Middle Chalk of Cuxton, is described by Mr. E. T. Newton as probably belonging to the Rhynchocephalia, a group of lizard-like animals, which includes the living New Zealand *Hatteria* and the Triassic *Hyperodapedon*.

THE *Transactions* of the American Microscopical Society for 1899 (vol. xxi.), contains a number of interesting articles on microscopic objects, zoological and botanical, together with a smaller number on microscope construction and laboratory apparatus.

IN the *Agricultural Gazette* of New South Wales for August, we notice a number of papers of interest and value for farmers and horticulturists in the Colony. Much information is contained in this and in previous numbers on the diseases to which domestic animals and cultivated crops are liable, and on the best methods for their treatment.

THE parts most recently received of Engler's *Botanische Jahrbücher* are Heft 4 of vol. xxviii. and Heft 2 of vol. xxix. Besides a few shorter articles, these parts are almost entirely occupied by two important descriptive papers—a continuation of the editor's report on the results of the German Nyassa expedition, and one by D. Diels on the flora of Central China.

THE *Bulletin* of the Imperial Society of Naturalists of Moscow, No. 4 for 1900, contains several interesting botanical papers in German. Of these the most important is the second of a series by W. Arnoldi on the morphology and history of development of the Gymnosperms. The present paper is devoted to the process of fertilisation in *Sequoia* (*Wellingtonia*), and is a link in the chain of the numerous and most important observations of recent years which connect the process of impregnation in Gymnosperms with that in Vascular Cryptogams on the one hand, and that in Angiosperms on the other hand.

THE third annual dinner of the association of old students of the Central Technical College will be held on Tuesday, October 2nd, at the Restaurant Frascati, Oxford-street. Old students can obtain further particulars from the honorary secretary, Mr. M. Solomon, 12, Edith-road, West Kensington, W., to whom all applications for tickets should be made.

THE three parts of vol. xxxix. of the *Transactions* of the Royal Society of Edinburgh, which have just been issued, contain several very valuable papers read before the Society during the sessions 1897-98 and 1898-99. All the papers have been published separately, and most of them have been reviewed in NATURE, or briefly described in the reports of the meetings of the Society.

MESSRS. BAILLIÈRE, TINDALL AND COX have published the fifth edition of "A Synopsis of the British Pharmacopœia," compiled by Mr. H. Wippell Gadd, with analytical notes and suggested standards by Mr. C. G. Moor. This little pocket-book is widely appreciated: it contains a complete table of chemicals, drugs and preparations in the official "Pharmacopœia," with their character, doses, &c., as well as other information arranged in a convenient form.

THE additions to the Zoological Society's Gardens during the past week include a Mona Monkey (*Cercopithecus mona*, ♀) from West Africa, presented by Mrs. C. Campbell; a Red-footed Ground Squirrel (*Xerus erythropus*) from West Africa, presented by Dr. Oswald Horrocks; a Grey Ichneumon (*Herpestes griseus*) from India, presented by Captain W. H. Rotheram, R.E.; a Plantain Squirrel (*Sciurus plantani*) from Java, presented by Mr. H. H. Goodwin; two Dusky Ducks (*Anas obscura*) from North America, presented by Mr. W. H. St. Quintin; a Peregrine Falcon (*Falco peregrinus*), European, presented by Mr. A. L. Jessopp; three Jays (*Garrulus glandarius*), British, presented by Dr. R. B. Sharpe; four Pheasants (*Phasianus colchicus*), British, presented by Mr. F. Larratt; two Western Yellow-winged Laughing Thrushes (*Trocholop-terum nigrimentum*), a Rufous-chinned Laughing Thrush (*Lanthocincla rufularis*), a Slaty-headed Scimitar Babbler (*Pomatorhinus schisticeps*), a Black-throated Ouzel (*Merula strigularis*), two Tickell's Ouzels (*Merula unicolor*), a Spotted wing (*Psaroglossus spiloptera*) from British India, presented by Mr. E. W. Harper; a Blue and Yellow Macaw (*Ara ararauna*) from South America, presented by Mr. Randolph Berens; a Red Tiger Cat (*Felis chrysothrix*), a Leopard (*Felis pardus*), two Rose-ringed Parrakeets (*Palaeornis docilis*) from West Africa, a Yellow-crowned Troupial (*Icterus chrysoccephalus*), a Yellow-backed Troupial (*Icterus croconotus*) from South America, an Alpine Marmot (*Arctomys marmotta*), two Cross-bills (*Loxia curvirostra*), European; ten Elephantine Tortoises (*Testudo elephantina*) from the Aldabra Islands, deposited.